CATERPILLAR INC.

EXECUTIVE ORDER U-R-001-0556 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in California Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)		
2019	KCPXL18.1HXF	. 18.1	Diesel			
SPECIAL	FEATURES & EMISSION	CONTROL SYSTEMS	TYPICAL EQUIPMENT A	PPLICATION		
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Engine Control Module, Oxidation Catalyst, Exhaust Gas Recirculation			Pump, Compressor, Commercial Equipment			

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)				OPACITY (%)			
POWER			NMHC	NOx	NMHC+NOx	co	PM	ACCEL	LUG	PEAK
ELSE > 560 kW	Tier 4 Final	STD	0.19	3.5	N/A	3.5	0.04	· N/A	N/A	N/A
		CERT	0.03	2.9	**	0.00	0.04			

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this

day of September 2018.

Annette Hebert, Chief

Emissions Compliance, Automotive Regulations and Science Division

ATTACHMENTIOFI

Engine Model Summary Template U-R-001-0556

R/C 12/2/2019

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
KCPXL18.1HXF	Cert Test 1	C18	798@1800	451	273	2694@1300	503	217	DFI,TC,ECM,CAC,EGR,OC
KCPXL18.1HXF	1	C18	798@1800	451	273	2694@1300	503	217	DFI,TC,ECM,CAC,EGR,OC
KCPXL18.1HXF	2	C18	754@1800	439	266	2578@1300	480	210	DFI,TC,ECM,CAC,EGR,OC
KCPXL18.1HXF	3	C18	754@1800	439	266	2578@1300	480	210	DFI,TC,ECM,CAC,EGR,OC
KCPXL18.1HXF	4	C18	756@1950	416	273	2575@1300	476	208	DFI,TC,ECM,CAC,EGR,OC
KCPXL18.1HXF	5	C18	802@1950	436	286	2693@1300	494	216	DFI,TC,ECM,CAC,EGR,OC
KCPXL18.1HXF	6	C18	798@1800	451	273	2694@1300	503	217	DFI,TC,ECM,CAC,EGR,OC
KCPXL18.1HXF	7	2806F	754@1800	439	266	2578@1300	480	210	DFI,TC,ECM,CAC,EGR,OC
KCPXL18.1HXF	8	2806F	798@1800	451	273	2694@1300	503	217	DFI,TC,ECM,CAC,EGR,OC
KCPXL18.1HXF	9 🕅	C18	754@1800	439	266	2578@1300	480	210	DFI,TC,ECM,CAC,EGR,OC

* New engine code